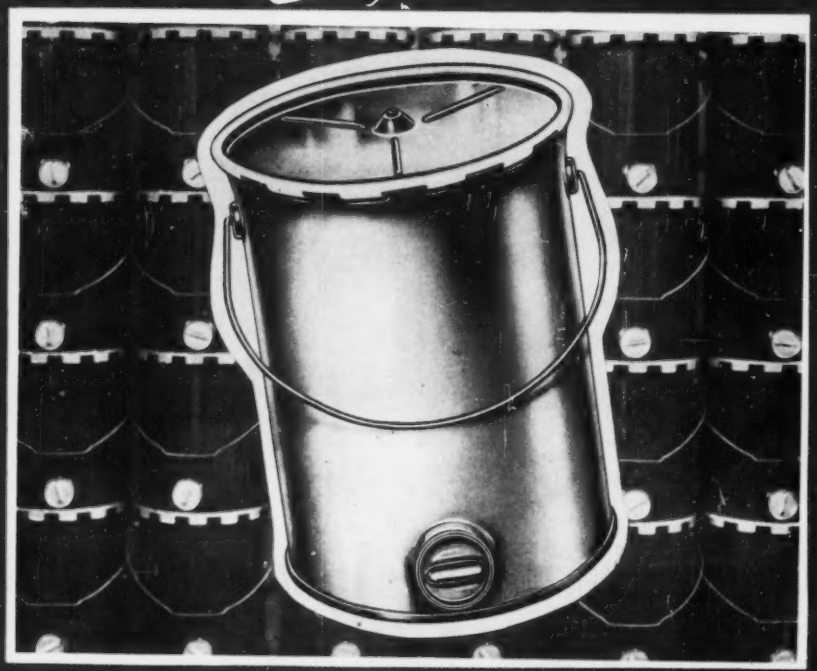
The Institute Spokesman



In This Issue . . . .

Modern Developments in Fats for Grease Manufacture . . . Page 7
By F. Braddy, Swift & Company

All Purpose Greases . . . . . Page 10
By R. M. Klapp, Aluminum Research Laboratories, Aluminum Company of America, and J. T. Bunting, Aluminum Company of America

Patents and Developments . . . . . Page 13

President's Page . . . . . Page 5

Technical Committee Column . . . . . Page 21
By H. L. Hemmingway, Manager, Technical Service Department, The Pure Oil Company

Books and Publications About the Industry . . . . . Page 23

Official Publication of NATIONAL LUBRICATING GREASE INSTITUTE

The direction of plus – A summary of achievement

Precision engineering research is responsible for uncompromising improvement . . . that every laboratory may have the benefit of even the most recent development.

A glance at the two illustrations above will readily reveal the caliber of engineering advancement responsible for the leadership of Precision-Freas constant temperature equipment. The streamlined mechanical convection oven on the right is a great improvement over its gravity convection predecessor.

As no improvement is ever accepted as final, as no design is ever taken as the last word, persistent engineering advancement and uncompromising improvement is the rule as we endlessly progress in the direction of plus.

Precision Scientific Company

OFFICES IN CHICAGO, NEW YORK, PHILADELPHIA, SAN FRANCISCO
DEALERS IN ALL PRINCIPAL CITIES

3737 WEST CORTLAND STREET • CHICAGO 47, ILLINOIS

Aluminum Stearate 23

Lithium Stearate

Barium Stearate

Lead Oleate

Aluminum Stearate 22

Stearite

Calcium Stearate

Aluminum Stearate 22-C

Lead Stearate

Bentonite

Clays

QUALITY-MADE BY WITCO to help make better grease -ALUMINUM STEARATE 22-C

Aluminum Stearate 22-C is a Witco quality-controlled product for greases—especially developed to increase yield. Greases produced with Aluminum Stearate 22-C are characterized by exceptionally high melting point and worked stability.

Other basic Witco materials for the petroleum industry are listed on this page. Complete information—and samples of all Witco products are yours for the asking. Write today for technical report on Aluminum Stearate 22-C.

YOU KNOW THAT WITCO MAKES HIGHEST QUALITY PRODUCTS

WITCO CHEMICAL COMPANY MANUFACTURERS AND EXPORTERS

295 MADISON AVENUE, NEW YORK 17, N. Y.

LOS ANGELES • BOSTON • CHICAGO • DETROIT • CLEVELAND • SAN FRANCISCO • AKRON • LONDON and MANCHESTER, ENGLAND

INTERNATIONAL LUBRICANT CORPORATION

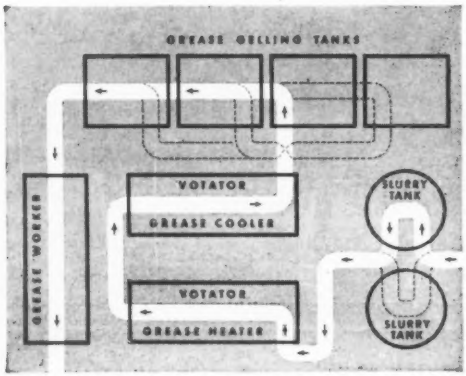
New Orleans, U. S. A.

MANUFACTURERS
OF
QUALITY
LUBRICANTS

AVIATION
INDUSTRIAL
AUTOMOTIVE
MARINE

With Research Comes Quality, With Quality Comes Leadership.

Less money makes more money in Grease



•••• when aluminum stearate lubricating grease is cooked and cooled on a continuous basis with VOTATOR grease making apparatus. Heat transfer in seconds cuts cost. Completely closed operation eliminates danger. Completely controlled operation assures uniform quality. Nationally known grease makers have found it pays to discard potluck batch methods. Write for case history facts. The Girdler Corporation, Votator Division, Louisville 1, Ky.

District Offices: 150 Broadway, New York City 7 • 2612 Russ Bldg., San Francisco 4 • Twenty-two Marietta Bldg., Rm. 1600, Atlanta 3

Votator

CONTINUOUS HEAT TRANSFER SYSTEMS FOR VISCOUS MATERIAL

VOTATOR is a trade mark applying only to products of The Girdler Corporation

President's page

by B. G. Symon, President N.L.G.I.

Two new features make their appearance for the first time in this issue of the "Spokesman." One is the section headed "Patents and Developments," the other, the column of book reviews. Both are evidence of the forward-looking policy of the N.L.G.I. and of the "Spokesman's" effort to be of the greatest possible service to Institute members.

Until now, no publication has devoted space specifically to new patents and technical developments in the lubricating grease industry. Such information is of undoubted value to N.L.G.I. members in the conduct of their business. Your Board of Directors feels, therefore, that it should be collected and edited regularly and made available through the "Spokesman." Peter J. Gaylor, who is doing the job for us, is a veteran in both the petroleum and patent fields. He is well qualified to present each month a complete and up to date account of patent and development news.

The technical book review column, which will also appear monthly in the "Spokesman," will describe new technical publications in the grease and allied fields. This feature also should help Institute members keep abreast of new developments that relate to their business.

I think you will all be interested in a report from the executive secretary about the October meeting in New Orleans. Reservations already received by his office indicate that the meeting will be one of the largest the Institute has ever held. In fact, difficulty is being experienced in securing sufficient hotel space because reservations are coming in much faster than expected. If you plan to attend, and have not yet notified the secretary to this effect, do so as soon as possible. Come prepared to hear one of the finest programs we have ever presented. The details are now being worked out and will be announced in future issues of the "Spokesman."

Each month you will see a new cartoon illustrating the necessity of early reservations for the Annual Meeting. These cartoons will be facetious, but at the same time deliver the serious message of early reservations. This month we see the near-sighted individual looking at the eye chart and telling the doctor, "Sure I can read it, Doc; it says, N.L.G.I. Annual Meeting."

Our Annual Meeting is the one opportunity we all enjoy of discussing mutual problems and hearing the leaders of our industry present the latest technical developments that can be of benefit to us every day of our business life.

For HIGH QUALITY "inside and out"

specify

AERO* BRAND STEARATES

The "inside" story of AERO BRAND Stearates' uniform quality and purity is found in the new process by which these metallic soaps are made – the modern equipment that is used, the constant research and continual chemical control.

This high quality is protected on the *outside*, too, by Cyanamid's exclusive method of packaging its stearates in strong, multi-wall paper bags–bags that have the additional advantages of being convenient to handle and economical to store.

It *always* pays to specify AERO BRAND Stearates. *Trademark

AMERICAN Cyanamid COMPANY

INDUSTRIAL CHEMICALS DIVISION

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Modern Developments in FATS for GREASE MANUFACTURE

By F. E. LACEY
Swift & Company

Inedible tallow and grease are still the most important fatty constituents of lubricating grease, as is shown by Figure 1.

Figure No. 1—1947

	Million Lbs.	% of Total
Tallow (Inedible)	37.0	26.0
Grease (Ex-wool)	26.7	18.8
Grease Oil and Lard Oil	19.9	13.9
Tallow Oil	10.8	7.6
Fatty Acids	11.3	7.9
Rapeseed Oil	8.5	5.9
Wool Grease	6.0	4.2
Stearic Acid	4.6	3.2
All Other	17.6	12.5
Total	142.4	100.0

Maybe it always will be; but no doubt each one of you has encountered problems that have made the fat you used previously unsuitable for specific uses. With the requirements for better lubricants, it seems logical to think that a greater demand will develop for fats and fatty acids which can be depended on to do the same job day after day because the exact composition of the fat is known.

From the other side of the fence I'll let you Lubricating Grease fellows in on a secret—all my business life I've supplied fats to your industry and I've wondered how you could possibly make uniform products. Your specifications could be met by hundreds of combinations of beef, pork, and sheep fat—and no doubt there were fats of even more varying origins. I'm sure this inexact raw material must have been a real "headache" to the Lubricating Grease chemist's struggling for exactness in his formulations.

Lard Oil is an excellent example: Each day's production may be somewhat different, depending on the origin of the grease, the feed the porker ate, disposition of the workers, outside temperatures, and many other factors. Lard Oil has been used extensively in making Sulphurizing Bases for cutting oil and additives. The results are somewhat unpredictable because of these differences of composition. The new techniques being developed will provide more uniform products for the grease manufacturer. Indications now lead us to believe that excessive amounts of Polyunsaturates are disturbing factors.

The Fatty Acid Industry, which at that same time was a small volume proposition, was well covered by a few firms which were generally operating with only moderate profits and with some equipment originally developed for the purposes. I cite these examples to show there was, and is, a need for the modern processing. The industry has made considerable strides, and no doubt we are just beginning to scratch the surface. In 1920, I doubt if there were over 20 chemists in the United States engaged in research on industrial fats. There are no exact figures, of course, available; but I would estimate several hundred now spend their entire time on Industrial Fat research.

There are many factors that motivate forward steps in any industrial field, but all of them stem from the opportunity of profit; and profit, with the exception of developments made by public-financed institutions, is the driving force which leads to industrial progress. I doubt if any of you have received an appropriation for the expenditure of your stockholders' money on any other basis.

Now I should like to say something of the social significance of modern developments in industry. As an example, I'll use the manufacture of Lard Oil, where the early processes required a sum not to exceed

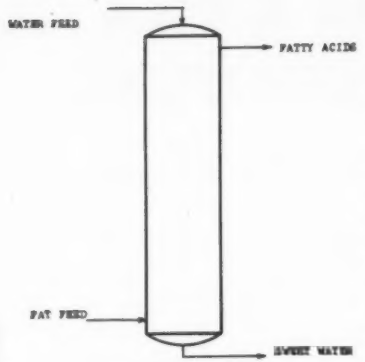
F. E. Lacey joined Swift & Company in 1926, shortly after being graduated from the University of Missouri. In the 22 years since then he has been associated with the fat and oil business of the company.

After a period of student training at South St. Joseph, Lacey was engaged in sales work in New York City and Toronto. He returned to the general offices of the company in Chicago in 1928 and for the next 16 years was associated with the procurement and sales of fat and oil for the company.

He was appointed manager of the industrial oil department in 1944. Growth of this phase of the company's business is reflected in the new industrial oil plant now nearing completion at Hammond, Ind. This new unit will process fat and oil for use in the manufacture of lubricants, rubber, textiles, soap, cosmetics, linoleum, paint, and many other industrial products.

F. E. LACEY

Figure 2



FAT SPLITTING UNIT

$500 of the stockholders' money for each employee engaged in production. Today a modern plant requires over $20,000 capital per employee. Likewise, the productivity has been increased by about the same ratio; and the work has been changed by modern machinery from a job requiring a strong back to one which employs a skilled technician capable of earning a good rate of pay.

Fats are perhaps as complex as any naturally occurring substance being made up of the 21 fatty acids and distributed throughout each type of fat in a more or less random Tri-glyceride hook-up. Separating them into their components is a difficult job, requiring very closely controlled processes. Except for cold pressing Lard Oil and a combination of cold pressing and hot pressing to produce Oleic and Stearic acid, there were few attempts to separate them until the early 30s, when fractional distillation of fatty acids provided industrial users with fatty acids of a reasonable degree of purity. This has been an important development and is now fairly well evaluated and you are no doubt familiar with the products.

In the late 30s and early 40s the Solvent Crystallization principle, developed by the Petroleum Industry and used extensively in dewaxing petroleum oil, was applied to the fatty acid industry and has been well accepted. This process provides an increased efficiency of separation, doing the general pressing job more efficiently and with greater exactness. By this method it is possible to provide a Stearic Acid with practically no unsaturates present, an Iodine value of 1 being possible. This same process is applicable to the separation of the saturated and unsaturated portions of the Triglyceride.

Undoubtedly you are expecting me to dwell at length on the equipment, processes and products of the Swift & Company Technical Products Plant, at Hammond, Indiana, and, mindful of this, I am not going to disappoint you. If you read the article in the August issue of the "Institute Spokesman," you are no doubt familiar with some of the processing.

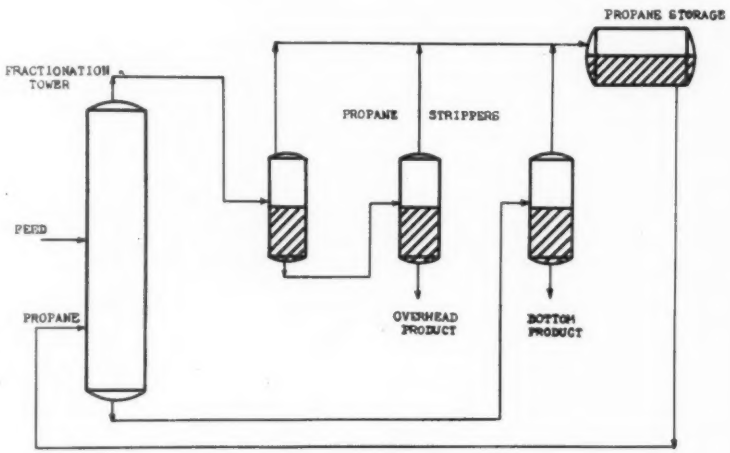
We at Swift & Company have a great stake in the processing of various types of fats, and we strive to maintain the most efficient processes, whether it be for edible or inedible use. We have felt the need of being able to accurately fractionate the various fats coming to us in their natural state, and the series of processes being installed at the new plant will accomplish this, we feel, very accurately and in sufficient volume to take care of industrial needs.

Splitting fat has been done in general with Twitchell Reagent, which involves a process of boiling, drawing-off, and re-boiling for as many times and as many hours as are necessary to secure a complete split. This process is being replaced at Hammond with a continuous high temperature Hydrolysis Unit, which employs counter current reaction in an Inconel lined pressure tower 78 feet high.

In this unit the fat is introduced at the bottom and the water at the top of column. Temperatures are maintained at about 500 F. and under 725 lbs. pressure. The glycerine sweet water is continuously removed at the bottom of column and the fatty acids at the top of column. The problem of re-esterification is eliminated because of this continual removal of the finished products. This unit will produce mixed fatty acids practically 100 per cent free of glyceride, and, consequently, of a high reactivity; but we still have the problem of separating the fractions.

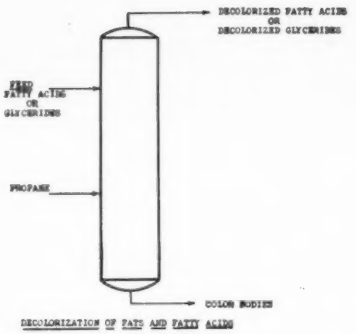
One unit being used to effect separation is known as the Solexol Process and is being built and licensed by the M. W. Kellogg Company. This process is effective because of the selective solubility of the solvent Propane for the various components of the fatty material. The solvent is kept liquid by pressure. To illustrate this, Figure 3 gives the relative solubility of fatty constitutents in propane under pressure. The relative solubilities of the free fatty acids are in the same order as those shown for the glycerides.

Figure 4



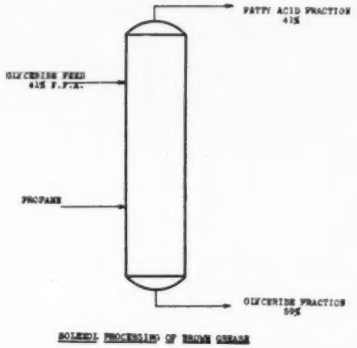
SOLEXOL PROCESS

Figure 5



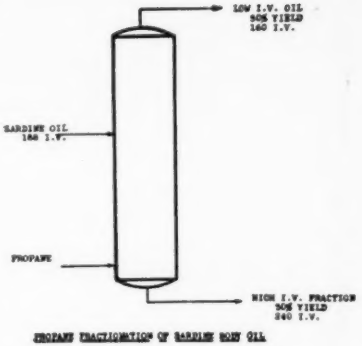
DECOLORIZATION OF FATS AND FATTY ACIDS

Figure 6



SOLEXOL PROCESSING OF BROWN GREASE

Figure 7



PROPANE FRACTIONATION OF SARDINE BODY OIL

Figure 3

RELATIVE SOLUBILITIES
OIL CONSTITUENTS
IN HOT PROPANE

Saturated TriGlycerides
Unsaturated TriGlycerides
Di and Mono Glycerides
Color Bodies

The Solexol Process can be shown by a simple flow diagram, Figure 4.

The Solexol Process also will remove the dark color from glycerides in a most efficient manner.

This may be of great importance to the Lubricating Grease manufacturers, providing light color glycerides of any required FFA content and with no great increase in cost.

The fat or fatty acid being fractionated is introduced in the middle of the fractionation tower and the propane near the bottom. Temperatures are maintained at just under the critical point of propane, which is about 260° F. and pressure about 600 pounds. To illustrate the versatility of the Solexol Process, I shall show several typical operations. Figure 5 shows how the Solexol Process replaces distillation, which remains the most common method of removing color bodies from fatty acids. The remarkable thing about the process is that it also works on glycerides in the same manner.

Figure 6 illustrates still another method of making fatty acids by selectively dissolving the free fatty acid fraction of Brown Grease and leaving the Tri Glyceride fraction unchanged. Each fraction is more valuable for specific purposes.

Figure 7 further illustrates the versatility of the process, showing one of the Solexol separations of Sardine Oil, which is, perhaps, of no value to the Lubricating Grease manufacturer but of great interest to the Drying Oil trade.

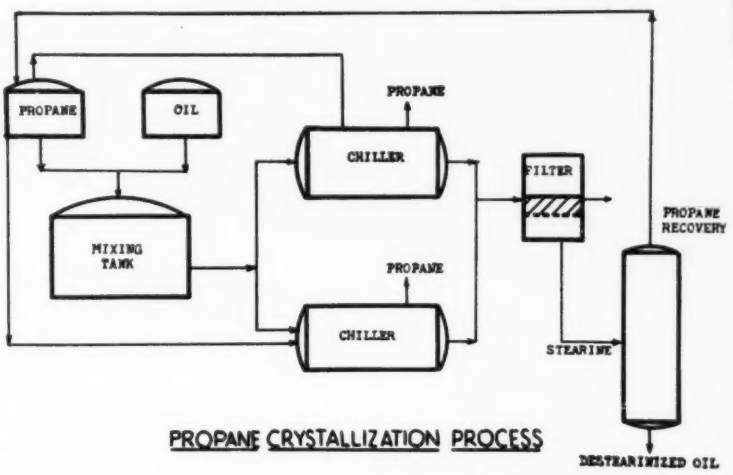
This list of slides can be expanded to the point of monotony and still not cover all of the fractionations possible with the Solexol Unit for fats and fatty acids. So I should judge the question in your mind is: What fractionations are impossible with the Solexol Unit?, and that is my next point.

You cannot separate some products in the Solexel Unit—notably, Oleic from Stearic acid; they have the same chain length, and, consequently, almost the same solubility in hot propane. Neither can you separate Lard Oil and Stearine by this method.

For the same reason another unit, therefore, must be provided. The Crystallization Process is needed for a complete plant; and we have installed one, also using propane as the solvent. This plant uses the principle of refrigeration by expanding gas for its chilling medium. This process was borrowed from the Petroleum Industry, and you probably know it as Propane Dewaxing.

Figure 8 shows a flow diagram of the Crystallization Process.

Figure 8



PROPANE CRYSTALLIZATION PROCESS

GULF

A Complete Line of Quality Oils and Greases

★

GULF OIL CORPORATION—GULF REFINING COMPANY

DIVISION SALES OFFICES
Boston—New York—Philadelphia
Pittsburgh—Atlanta—New Orleans
Houston—Louisville—Toledo

REFINERIES
New York, N. Y.—Philadelphia, Pa.
Pittsburgh, Pa.—Toledo, O.—Cincinnati, O.
Port Arthur, Tex.—Fort Worth, Tex.
Sweetwater, Tex.

Producers of

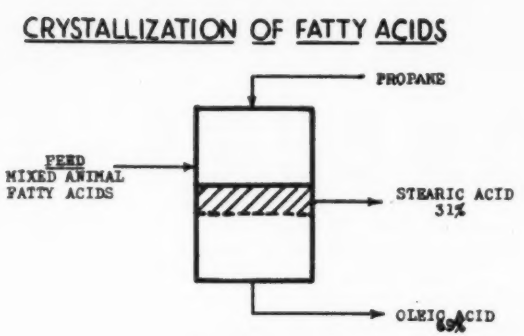
LEAD NAPHTHENATE

MOONEY CHEMICALS, INC.
INDUSTRIAL CHEMICALS

Phone
Superior 1022

2271 SCRANTON ROAD MCI CLEVELAND 13, OHIO

Figure 10

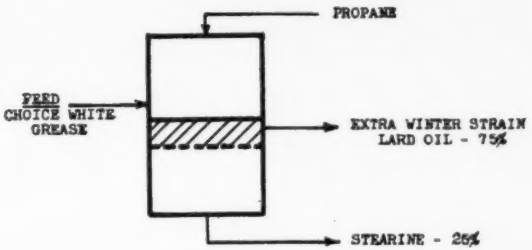


PRODUCT INSPECTIONS

	FEED	OLEIC ACID	STEARIC ACID
TITER °C.	37.6	8.1	52.6
IOD. NO.	60	91	5.5

FILTRATION TEMP. —5° F. PROPANE/OIL (VOL.) 7.

Figure 11



DESTEARINIZATION OF LARD OIL

Liquid propane and fat are mixed at temperatures high enough to keep the fat liquid and pressure to maintain the propane in liquid state.

The temperature is reduced by releasing the mixture into a larger vessel which crystallizes the higher melting fraction while holding the lower melting fraction in solvent solution. A continuous rotary filter separate the two fractions.

Figure 9 gives the relative order of crystallization of fatty material in cold propane.

Figure 9

ORDER OF CRYSTALLIZATION OF FATTY MATERIAL IN COLD PROPANE

Saturated Acids
Unsaturated Acids
Saturated Glycerides
Unsaturated Glycerides

Figure 10 shows the separation of Mixed Animal Fatty Acids with Oleic and Stearic.

Figure 11 shows the same process of making Lard Oil.

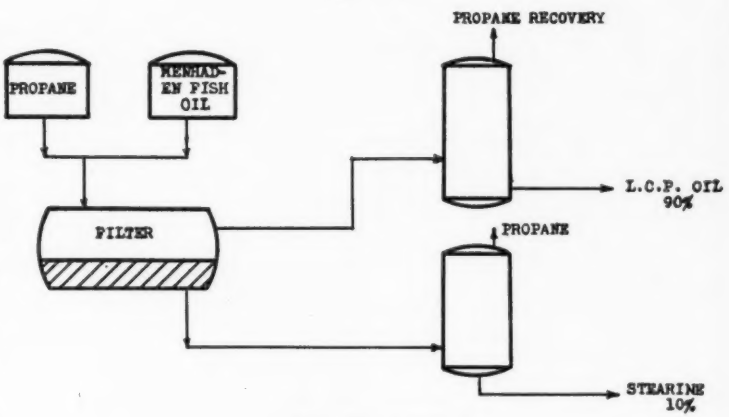
Figure 12 indicates the way this process will handle Menhaden Body Oil.

You will see that some fractionation can be made with either the high temperature Solexol Unit or with the low temperature Crystallization Equipment and thus the processes may compete for certain work.

How will all this affect the future of the Lubricating Grease Industry? You are in a better position to estimate this than I, but no doubt it will have a great effect on all industrial uses for fats and fatty acids. I trust the illustrations have given you some idea of the scope and versatility of the new processing—and somewhat of a preview of things to come. I do not look for the industry to stagnate: I think that sufficient research will be done by the progressive companies in the Industrial Oil and Fat business to provide you with good raw materials for any purpose. And we trust that the advancement of the raw material processing will keep pace with the need in your industry for better products.

In our own plants we have recognized the problem of developing the uses for these many new products, and have, consequently, constructed a pilot plant as complete as the commercial plant, capable of doing the same job on a smaller scale. This plant has complete instrumentation, solvent fractionating units, and processing equipment to make small quantities for evaluation work.

Figure 12



DESTEARINIZATION OF MENHADEN FISH OIL

PIONEERS

in the development of greases
for dependable lubrication
since 1853
— seven years before Col. Edwin Drake
brought in America's first commercial oil well.

SWAN-FINCH OIL CORPORATION

THE OLDEST NAME IN OIL

R. C. A. Building West New York 20, N. Y.

Monsanto

OIL ADDITIVES

- LABORATORY TESTED
- PROVED IN SERVICE

For complete information and technical data on Monsanto oil additives, write: MONSANTO CHEMICAL COMPANY, Petroleum Chemicals Department, 1748 South Second Street, St. Louis 4, Missouri.

MONSANTO CHEMICALS FOR PLASTICS

SERVING INDUSTRY . . . WHICH SERVES MANKIND

POUR POINT DEPRESSANTS
Santopour* Santopour B

GEAR LUBRICANT ADDITIVES
Santopoid* 29

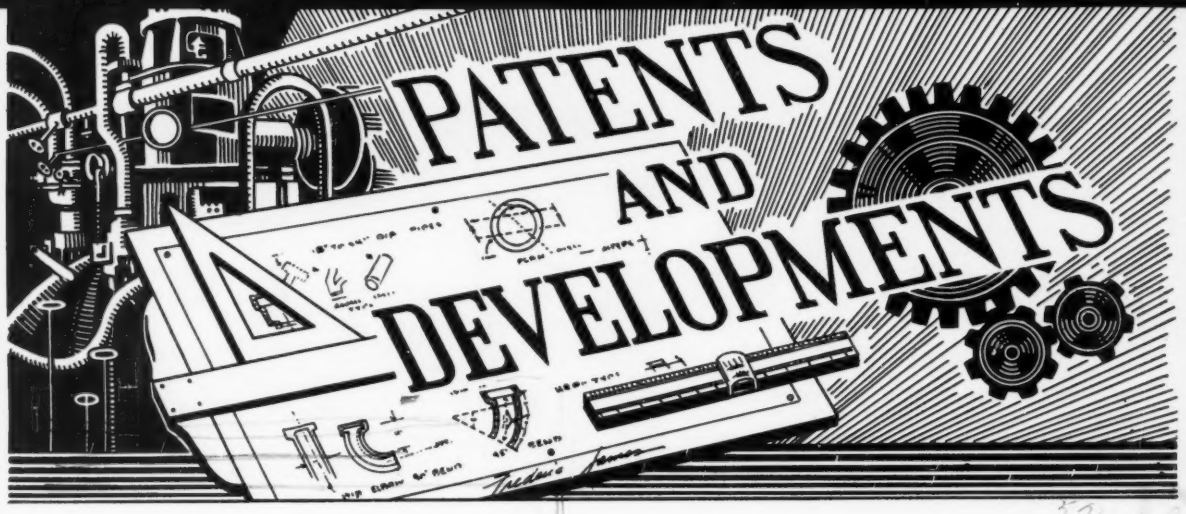
MOTOR OIL INHIBITORS
Santolube* 395, 395X, 398 Santolube 394-C

MOTOR OIL DETERGENTS
Santolube 203-A, 303-A, 520

MEDIUM AND HEAVY-DUTY COMBINATIONS
Special preblends of detergent and inhibitor

VISCOSITY INDEX IMPROVERS
Santodex*

*Reg. U. S. Pat. Off.



ALUMINUM-SODA GREASE—To meet a demand for a heavier grease-type lubricant, E. F. Houghton & Co. has developed a new aluminum-soda base grease with an exceptionally high melting point. It is recommended for industrial or automotive applications, large heavily loaded presses, particularly older equipment where bearings are worn, etc. (J. Commerce 2/16 p. 17).

"Wave Action" Agitator

"WAVE ACTION" PROPELLER AGITATOR — Struthers Wells Corp. has made, for Brooks Oil Co., radial type agitators, especially suited to mixing lubricant components in cases where conventional cross-bar type of agitation does not give sufficient mixing. The agitators operate at unusually high speeds and impart a rolling wave action for increased efficiency. (Chem. Proc. Prev. 1/49 p. 6) (See cut).

AUTOMATIC CONTROLS ON GREASE TESTERS—Texas Co. is installing automatic recording and controlling instrumentation on its ball and roller grease testing machine. (Petr. Proc. 2/49 p.175).

NEW PALMITIC ACID—A new palmitic acid (Emersol 140) has been made available by Emery Industries, Inc. Its properties: Titre 127-30°F, Iodine Value (max.) 3, Acid Value 207-13 (Chem. & Engrg. News 2/14 p. N).

SILICONE WITH HYDROCARBON RADICALS—An organo-polysiloxane having monovalent hydrocarbon radicals attached to silicon through C-S linkages has been patented by Corning Glass Works. The polymers may be oil soluble (U.S. 2,460,457).

CONTINUOUS GREASE VISCOSITY TESTING—A patent issued to Standard Oil Development Co., dealing with continuous grease manufacture, shows an apparatus for continuously determining the apparent viscosity in the flowing stream by passing a portion of the grease in streamline flow and under constant temperature and constant flow rate through a flow-retarding device of measurable length and radius, so that the rate of shear will be in the range of 10-1000 reciprocal seconds, and measuring the difference in pressure between two points spaced apart in the device (See Fig. 1) (U.S. 2,459,483).

FATTY ACID SEPARATION—The Texas Co. effects a fractional separation of oleic and linoleic acids, from a fatty acid mixture, substantially free of saturated acids, by extracting the mixture in a tower into the lower portion of which is introduced a low boiling ketone, the raffinate phase containing oleic acid plus 5-25% linoleic and chilling the latter diluted with 3-4 vols. of solvent to —60°F. to precipitate oleic acid in pure form (U.S. 2,459,054).

OIL CONCENTRATES OF METAL SULFONATES—A Standard Oil Development Co. patent describes a method for making concentrates of oil soluble polyvalent metal sulfonates in liquid hydrocarbons by contacting an oil solution of sulfonic acids or salts with an aqueous solution of lead acetate, barium acetate, or calcium propionate, heating the mixture to 275°-350°F. to dehydrate, separating the oil from the

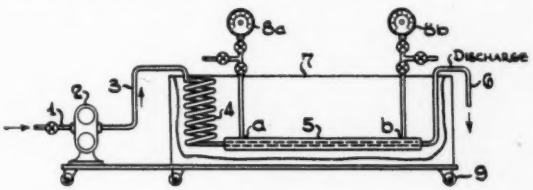


FIG.-1

Scientifically

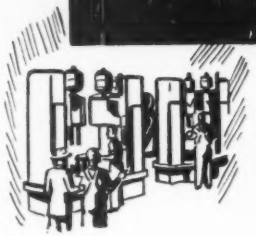
CONTROLLED MANUFACTURING

Every product that is manufactured by the Cato Oil & Grease Company is the final result of exhaustive laboratory tests. Actual manufacturing of all Cato lubricants is scientifically controlled. For that reason, many desirable "extras" are added to even the most highly refined lubricants. Look to Cato for quality lubricants that can be counted on for above-the-average performance.

Top Quality

CATO

LUBRICANTS



Engineered

APPLICATION SERVICE . . .

Cato's engineered application service assures proper application of all lubricants manufactured by the company. Cato engineers are waiting to serve you whenever difficulties arise . anxious to assist you in working out difficult lubrication problems.

CATO OIL AND GREASE CO., OKLAHOMA CITY, OKLA., U.S.A. MANUFACTURERS DISTRIBUTORS & EXPORTERS OF LUBRICANTS

HARDESTY

FIRST FOR FATTY ACIDS

for the GREASE MANUFACTURER

STEARIC ACID • RED OIL • GLYCERINE • STEARINE PITCH
WHITE OLEINE • HYDROGENATED FATTY ACIDS
ANIMAL AND VEGETABLE DISTILLED FATTY ACIDS

HARDESTY PRODUCTS ARE INDUSTRY'S KEYSTONE

W. C. Hardesty Company

41 EAST 42nd ST., NEW YORK 17

FACTORIES: DOVER, OHIO
LOS ANGELES, CALIF. • TORONTO, CAN.

precipitated complex, and reacting the complex with a dilute aqueous acid solution to reconvert the complex to an oil soluble sulfonate (U.S. 2,459,995).

CONTINUOUS GREASE MANUFACTURE—A method for continuous production of grease, patented by California Research Corp., involves intimately admixing proportional amounts of a preformed soap stock and preformed grease to form an intermediate uniform dispersion, and continuously intimately admixing this dispersion with a proportional amount of oil to form another uniform dispersion characterized by a high stability (U.S. 2,461,276).

OIL SOLUBLE METALLO-ORGANIC—An oil miscible condensation product is described in a Standard Oil Development patent, having an alkyl substituted aryl calcium oxide in which the oxygen of the calcium oxide group is directly attached to the aryl nucleus and in which at least 2 alkylated aryl nuclei are interconnected by at least one atom of an element of the sulfur family (U.S. 2,461,335).

DISTILLATION OF ALCOHOL EXTRACTS OF MAHOGANY SULFONATES—One patent to Sinclair Refining Co. shows a method of continuously distilling an aqueous alcohol extract of an oil soluble mahogany sulfonate to remove alcohol-water, by maintaining the residue in the column at a temperature above the b.pt. of water at operating pressure, and refluxing with a 30-90% alcohol mixture (U.S. 2,461,-371).

SEMICARBAZONE IN GREASE—An improved grease composition is said to be obtained by admixing the soap with a semicarbazone produced by condensing carbazide with a high molecular weight cyclic saturated ketone (Shell Development Co. Can. 454,226).

PATENTS AND APPLICATIONS—Brit. 615,-188 (Carbide & Carbon Corp.)—Lubricating greases. Brit. 615,564 (Stand. Oil Dev. Co.)—Lubricating grease manufacture.

Southwestern Petroleum Changes From Associate To Active Membership

The Southwestern Petroleum Company of Fort Worth, Texas, formerly an Associate Member of the N.L.G.I. has recently joined the Active Member ranks.

This company entered the oil and grease industry in just the reverse of the usual procedure. Normally, a company is formed, a factory put into production and a product built. After production gets under way, a sales organization is put together to distribute the merchandise to the public.

However, the Southwestern Petroleum Company started out under the capable leadership of President E. J. Beall as strictly a marketing organization composed of salesmen in the field, a sales department, credit department, bookkeeping department and all other such clerical divisions. This was January 1, 1934.

Under Mr. Beall's guidance and operating as a contemporary with its source of supply, business consistently increased through the years until volume reached the mark of a million pounds of grease and oil in proportion annually.

At this point the company acquired a factory with a key force of experienced compounders and blenders. The plant was overhauled and put into full production in a matter of a few weeks in November. The first grease was compounded November 12th, and shipments began from the factory on November 18th, in celebration of their president's birthday.

No item in their Cactus Brand Products line was altered at the time of the change over. As approximately 75 per cent of business from year to year is repeat business, they knew this brand had stood the test of quality with the trade. Using the twenty years of experience of Superintendent T. B. Williams, The Southwestern Petroleum Company has made satisfactory strides in gradually improving the quality of each item.

J. W. Shugart, Jr., Vice President, tells us that while it might appear to the members of the National Lubricating Grease Institute that they are new in this business, that is not the case, since they have been Associate Members in the past.

Mr. Shugart writes, "We are mighty happy to be counted as Active in the Institute."

FISKE BROTHERS REFINING CO.

Established 1870

★

NEWARK, N. J.

TOLEDO, OHIO

★

Manufacturers of

LUBRICATING GREASES

ALEMITE PRODUCTS

FOR

AUTOMOTIVE-INDUSTRIAL-FARM

LUBRICATION

- LUBRICATION FITTINGS AND HAND GUNS
- HANDLING AND TRANSFERRING EQUIPMENT
- POWER OPERATED LUBRICATION EQUIPMENT
- PORTABLE LUBRICATION DEPARTMENTS
- AUTOMATIC LUBRICATION SYSTEMS
- CENTRALIZED LUBRICATION SYSTEMS

ALEMITE

division of

STEWART-WARNER CORP.

CHICAGO

ALL-PURPOSE Greases

E. M. KIPP, Aluminum Research Laboratories,
Aluminum Company of America
and
J. T. BUNTING, Aluminum Company of America

INTRODUCTION

An ideal grease would be one whose operating characteristics would leave nothing to be desired in any type of application which would normally employ a grease as a lubricant. As of the present, variations in equipment and operating conditions have necessitated the use of various types and grades of greases. To the best of our knowledge, the perfect all-purpose grease has not yet been developed. However, considerable work has been devoted by the manufacturers of greases and others to the problem of developing "all-purpose greases" of sufficient merit to permit, in some cases, a substantial degree of simplification and standardization in the number of greases required to satisfactorily lubricate a wide variety of equipment.

The consumer of grease products is directly interested in the development of greases which will permit as small a number as possible of greases to be used, commensurate with adequate performance. Such standardization of grease products would have several important advantages. Among these may be cited storage problems, application of the greases, and purchasing problems. Where it is necessary to employ a half dozen or more greases in the lubrication of a given plant, it is correspondingly more difficult to insure that the correct grease is applied in the proper place at the proper time and in a correct amount.

A recent survey of the grease lubrication practices in the various plants of the Aluminum Company of America disclosed that some 135 different brand name products were in use. This situation was a result of the use of greases recommended by equipment manufacturers and various lubricant suppliers. Obviously this number of greases is far in excess of that required for satisfactory lubrication.

In an attempt to determine the degree to which some standardization could be effected in our grease requirements, a considerable amount of development work, both of a laboratory and plant nature, is being carried out in our Company. As a result, several of the more promising types of industrial "all-purpose" greases have been selected for extensive field scale evaluation. The barium soap type all-purpose grease has been among the more promising of these "all-purpose" type greases. This grease has been undergoing extensive field tests in various of our plants. Although the tests are not as yet complete, it is felt that they have progressed to the point where a general progress report can be given with regard to the results obtained to date.

These results are being reported at this time for whatever interest or value they may have to any who are concerned with the manufacturing, selection, and application of greases. They do not constitute, in any way, recommendations as to practice.

In this paper, the range of applications covered by the use of this type of all-purpose grease in our field tests will be given, together with an indication of the performance results obtained so far.

The typical inspection data for the barium base grease employed are as follows:

	N.L.G.I. No. 1	N.L.G.I. No. 2
Worked Penetration	320-350	250-280
Soap Base	Barium	Barium
Per Cent Soap	13.5-16%	16-20%
Mineral Oil Base	640 SSU/100 60 SSU/210	640 SSU/100 60 SSU/210

FIELD INVESTIGATIONS

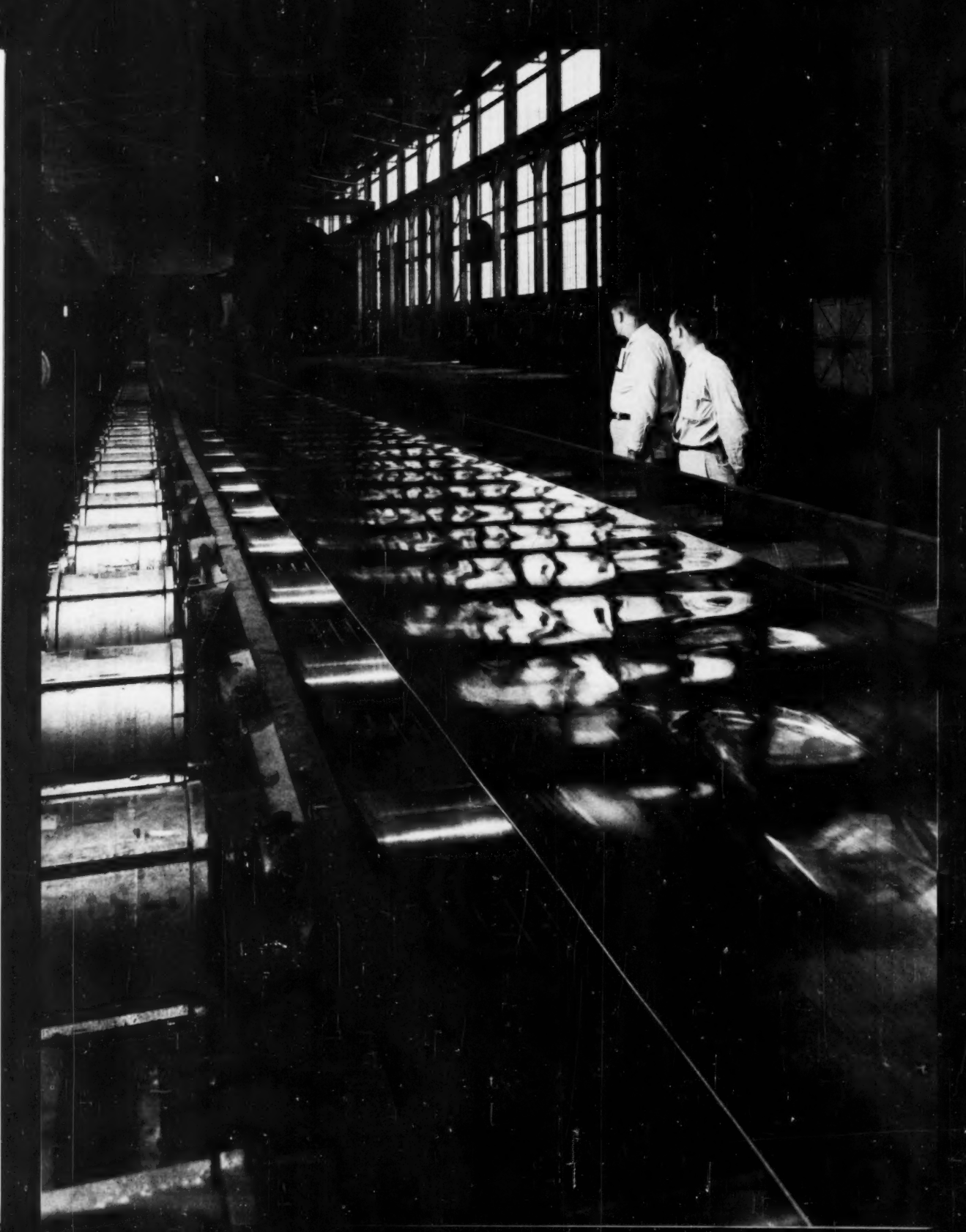
I. Plant A

This plant is essentially one devoted to the production of hydraulic press extrusions. This plant has been utilizing, for well over a year, a single barium base grease in the N.L.G.I. No. 2 consistency. The range of applications involved are as follows:

(a) Anti-Friction Bearings—Ball and Roller.

This grease lubricates all antifriction bearings in the plant. These bearings vary in size from ½" to 3" in bore. Operating speeds range from slow speed bearings up to and including bearings revolving at a maximum of 1800 rpm. Insofar as is known, no abnormal loads or clearances are involved in any instance. The maximum operating temperature is approximately 150°F. There are no unusual contamination problems such as water, dust, etc. In equipment such as electric motors fitted with ball bearings, the bearings are packed and left undisturbed for periods up to one year. To date, there has been no instance indicating failure of this grease to do a satisfactory job.

Run-out table from 80" continuous hot mill in Alcoa, Tennessee, North Plant. Bearings of the mill from which this long strip of metal is immerging are lubricated with the all-purpose type barium soap grease discussed in this article.



SYNTHETIC-100

Extreme Jell Aluminum Stearate

Has been warmly received by grease manufacturers and proven to have the following advantages over other grades of Aluminum Stearate:

1. GIVES HIGHEST YIELD, NON-BLEEDING LUBRICANTS WITH ALL OILS.
2. SHOWS BEST ON PENETRATION TESTS, BOTH WORKED AND UNWORKED.
3. GIVES HIGHER MELTING POINT GREASES.
4. AFFORDS CONSIDERABLE SAVINGS IN COST BECAUSE LESS IS USED.
5. UNIFORM, LABORATORY CHECKED PRODUCTION.

•

SEND FOR SAMPLE

•

SYNTHETIC PRODUCTS CO.

(Established 1917)

1798 LONDON ROAD CLEVELAND 12, OHIO

(b) Automotive Equipment.

This grease is used in all grease lubricated parts in all of the automotive equipment employed in this plant, and to date has given excellent service. The greasing of automotive equipment is done in a heated garage and no grease pumping problems have so far been encountered.

(c) Journal Bearings and Water Pumps.

This grease has been employed in the lubrication of all journal bearings and of the journal bearings of the hot water pumps. In the latter application, exposure to temperatures of 160°F. and considerable washing action by leakage of water through the pump glands is involved. Again, the performance of the grease has been judged to be entirely satisfactory.

(d) Miscellaneous.

These applications include lubrication of reciprocal sliding motion bearing plates on extrusion presses and stretching machines. In these applications it is important that the sliding bearings operate smoothly and freely without any chattering at very low speeds. Likewise, considerable contamination from dust and dirt is encountered on the slideways. Unit loads vary from 500 to a maximum of perhaps not over 5000 pounds per square inch. Again, the grease has performed to our entire satisfaction.

II. Plant B

This plant is devoted primarily to the production of die castings. In this plant, field tests have involved the use of both the No. 1 and No. 2 N.L.G.I. consistency grades of the barium base all-purpose grease. All anti-friction bearings are lubricated with the No. 2 consistency including those bearings operating up to 1800 rpm. In the case of those anti-friction bearings operating at speeds in excess of 1800 rpm., the No. 1 consistency grade is employed. The use of the No. 1 grade was not based upon unsatisfactory performance of the No. 2 consistency grade, but rather was based upon the manufacturer's recommended practice. In these higher speed bearings the No. 1 consistency of the all-purpose grease has operated satisfactorily.

The critical application of the all-purpose grease in this plant is on the die casting machines where the grease lubricated surfaces are subject to direct compression and toggle action loads on the order of 5000 psi. These bearing surfaces were previously lubricated with a mild extreme pressure type grease. Preliminary results in this application again did not disclose any evidences of unsatisfactory performance although in this particular case it is felt that the grease has not been sufficiently tested to warrant a definite conclusion.

III. Plant C

This plant is devoted primarily to the production of forgings and castings. The range of applications covered in this plant are briefly summarized as follows:

(a) Ball and Roller Bearings. All grease lubricated ball and roller bearings in this plant have

J. T. BUNTING

J. T. BUNTING joined the Aluminum Company of America as a Staff Mechanical Engineer immediately following his graduation from the University of Illinois in 1940. Through 1944, he was engaged in general machine design and preventative maintenance work at the Company's New Kensington, Pa., and South American Operations. His service with the Company was then broken for two years in order to serve as a Repair Officer in the Navy. Since 1946, he has been working out of the Company's Pittsburgh Purchasing Department as one of the coordinators of the Company's Lubrication Standardization program.

DR. E. M. KIPP

DR. E. M. KIPP was born in Angola, Portuguese West Africa, of missionary parents. He graduated from Iowa Wesleyan College in 1934, obtained his A.M. degree from Boston University in 1935, and his Ph.D. degree from Pennsylvania State College in 1939. He joined the staff of the Aluminum Company of America as a member of the Physical Chemistry Division in 1939; was made Assistant Chief in charge of the Oils and Lubricants Section in 1944; and became Chief of the Lubricants Division in 1947.

He is past president of the American Society of Lubrication Engineers, serves as chairman of several of its national committees, and is on the Board of Directors of that Society. He is very active in community affairs; is a member of the Pittsburgh Section of the American Chemical Society and of the Pittsburgh Chemist's Club. Honorary societies include Sigma Xi, Phi Lambda Upsilon, and Pi Mu Epsilon.

been lubricated for a period of over a year with the No. 2 consistency of the all-purpose barium base type grease. These bearings vary in size from ½" to 3" bore and include operating speeds up to 1800 rpm. Design loads and fits are not unusual in any way. Insofar as operating temperatures are concerned, these do not exceed 150°F. Many of these bearings are located on sand foundry conveyor belts where they are subjected to serious contamination by abrasive sands, etc. In spite of this fact, the operating characteristics of the grease have been quite satisfactory. Others of these bearings are located on shake-out screens and again are subjected to severe contamination by core sands, etc., and to severe impact vibration. Again, the operating characteristics of the grease have been satisfactory.

(b) Pillow Blocks and Journal Bearings.

All pillow blocks and journal bearings in this plant are lubricated with the single No. 2 consistency grade of barium base grease. Results to date have been good.

(c) Automotive Equipment.

The No. 2 consistency of this barium grease again has been used exclusively in all of the greasing operations on all automobiles, trucks, and industrial type materials handling lift trucks. This includes not only all grease lubricated points on the chassis, but also universal joints, wheel bearings, water pumps, etc. All of these applications have given good service to date.

(d) Forging Hammers.

This application represents the most critical use of a grease at this plant. In this case the bearings and guides that are normally grease lubricated are subjected to severe thrust loads and periodic impact vibration. Again, the "all-purpose" grease is doing a perfectly satisfactory job in these applications.

IV. Miscellaneous

One of the most severe high temperature applications in which this all-purpose grease has been given long term field scale testing has been in connection with the grease lubrication of the trunnion bearings on high temperature mixers. Particular applications in question have involved operating temperatures of from 300-350°F. with bearings of approximately 4" to 6" diameter, revolving at approximately 50 rpm. This particular application was one in which only costly specialty high temperature greases had previously given anything approaching satisfactory performance. When installed in this application, the barium base grease gave satisfactory performance in every respect, being comparable in this regard to the performance obtained with the best previous grease.

GENERAL DISCUSSION

Attention is called to the fact that results reported in this paper do not constitute in themselves final proof as to the feasibility or merits of the use of all-purpose greases. The barium base grease referred to in this report represents only one of several potentially useful types of greases which are now under investigation. Likewise, it is realized that many factors must be considered in any attempts to determine the economics and operating feasibility of utilizing all-purpose type greases. While the applications covered in this report are not as severe as those encountered in some industries, it is felt that the development and use of all-purpose greases with a view toward simplification of number of products, storage and application problems, has definite promise and merits further investigation and consideration.

GREASE MAKERS
ALUMINUM STEARATE
PLYMOUTH
No. 801-22
and all other Metallic Soaps

M. W. Parsons,
Imports & Plymouth
Organic Labs., Inc.
59 Beekman St., New York 7, N. Y.

IMPROVED

Automotive Lubricants

Greases and Cutting Fluids

PENOLA INC.

15 WEST 51 STREET, NEW YORK 19, N.Y.

USACO
AUTOMOTIVE-INDUSTRIAL
AIR COMPRESSORS
HYDRAULIC LIFTS
LUBRICATION EQUIPMENT
AIR VALVES - COUPLINGS
DEPENDABLE EQUIPMENT
THE UNITED STATES AIR COMPRESSOR CO.
5300 HARVARD AVE., CLEVELAND 5, OHIO

By Vice-Chairman H. L. Hemmingway

Manager, Technical Service Department, The Pure Oil Company

● **Meeting of Panel on Delivery Characteristics**

Technical Committee Chairman T. G. Roehner sailed for Europe on February 26, so for a few months this column will be edited by the Vice-Chairman. Incidentally, the Vice-Chairmanship was accepted by the writer after Mr. H. L. Moir's resignation with the assurance that in view of Ted's able handling of Committee activities there was very little for the Vice-Chairman to do. With Ted away, this has proved to be a masterpiece of understatement. It is our sincere intention, however, to try to live up to the high level of leadership and guidance which has been characteristic of Ted Roehner's handling of Technical Committee matters, during his absence.

On March 1, the Panel on Delivery Characteristics of Dispensing Equipment for Lubricating Greases under the chairmanship of Mr. L. C. Brunstrum, Standard Oil Co. (Ind.) met at the Standard Oil Building in Chicago. Representatives of five grease dispensing equipment manufacturers and five grease manufacturers considered the test data accumulated by the Panel since its initial meeting in June, 1948. These data, developed for the purpose of rating guns in terms of grease properties, were obtained with three types of chassis grease and five chassis guns at three test temperatures and two pressures. Because reproducibility was not all that could be desired it was decided to improve the test method and repeat the work on a single grease under more adequately controlled conditions. Despite the variations in flow rates, there was good agreement on the report that as much as one-third of the lubricant cannot be dispensed from conventional drums in which follower plates cannot be used.

Mr. Brunstrum's Panel has made real progress and is doing a fine co-operative job in a field where additional knowledge is badly needed but where much effort must be expended to produce conclusions.

The organization of the various Subcommittees mentioned in the February issue is proceeding. The Subcommittee on N.L.G.I. Classification of Greases has had acceptance letters from its membership and proposes a continued study of the present classification system.

You are urged once again that if you have suggestions for any of the Subcommittees or wish to volunteer participation, you may write to the chairman of the particular Subcommittee in which you are interested, or to the Vice Chairman of the Technical Committee, indicating your interest. A complete list of the Subcommittees and their Chairmen appeared in the February, 1949, issue of The INSTITUTE SPOKESMAN.

Manufacturers of
QUALITY GREASES
●
Made to Your Specifications Under Strictest Laboratory Control
●
AMERICAN LUBRICANTS, Inc.
1375 Clinton St.
BUFFALO 6, N. Y.

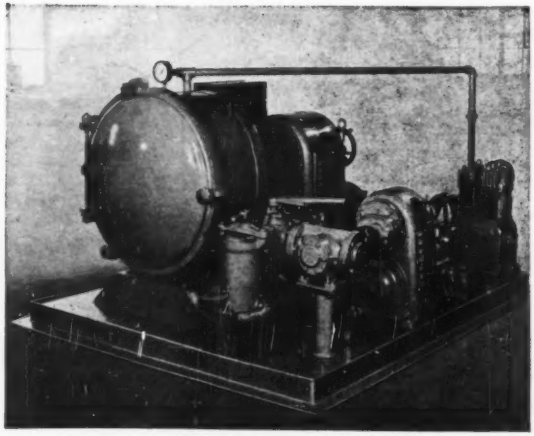
UNIFORM HIGH-QUALITY OILS ARE ESSENTIAL TO BETTER GREASE MAKING
For best products use
DEEP-ROCK
Non-Viscous and Viscous Neutral Oils • Bright Stock • "G" Cylinder Stock
Address inquiries to:
DEEP ROCK OIL CORPORATION
155 NORTH CLARK STREET • CHICAGO 90, ILLINOIS

America's Finest Greases are processed by this machine

The nation's leading grease manufacturers are processing with the Cornell Machine because of its exclusive micro-film method, which reduces even the heaviest greases to an extremely thin film moving over a rotating disc with great velocity and tremendous turbulence. The result is a supremely smooth, thoroughly worked product which is completely de-aerated. The processing is done at a rate up to 210 pounds per minute.

Write for details of installation

THE CORNELL MACHINE COMPANY
101 PARK AVENUE, NEW YORK 17, N. Y.



Grease Homogeniser, showing feed pumps, strainers and vacuum pump.

THE CORNELL MACHINE
For Processing
Lubricating Oils and Greases

MALMSTROM *Announces . . .*

NEW INGREDIENTS for GREASE COMPOUNDING

WOOL GREASE FATTY ACIDS

Nimco Brand Wool Grease Fatty Acids are in many ways superior to other additives. Their use in compounding oils and greases can effect noticeable savings in processing time and considerable improvement in product quality and staying power because . . .

- **They are not derived from glycerides.**
- **They are very stable due to their low iodine number.**

Samples and Specifications Sent On Request

MALMSTROM NIMCO BRAND WOOL FAT & LANOLIN

N. I. MALMSTROM & CO.

America's Largest Processor of Wool Fat and Lanolin

147 LOMBARDY ST., BROOKLYN 22, N. Y. • 444 W. GRAND AVE., CHICAGO 10, ILL.

SALES AGENTS—
FULLER ASSOCIATES, Cleveland 14, Ohio COMMERCIAL CHEMICALS, INC., Buffalo, N. Y. E. K. MASKELL, Detroit, Michigan
MARTIN, HOYT & MILNE, San Francisco 4, Los Angeles 13, Calif., Portland 9, Oregon, Seattle 4, Washington

Books and Publications
ABOUT THE INDUSTRY

All books reviewed on this page may be obtained from the office of the National Lubricating Grease Institute, 4638 Mill Creek Parkway, Kansas City 2, Missouri.

Chemistry for the Executive

by Ralph K. Strong, Head, Dept. of Chemistry, Rose Polytechnic Institute.

1946, 6x9, 460 pages, profusely illustrated, $6.00.

For some time there has been considerable demand for a book which would explain the elements of chemistry to business men and others having no previous scientific knowledge, in a way which would not only be simple, but readable enough to spend a pleasant evening with. This book has been written with that purpose expressly in mind. The author has devoted years to the teaching of elementary chemistry. No one is better qualified than he to present the subject.

CONTENTS: On the Chemical Elements. On Oxides. On Acids and Bases. On Gases and Chemical Formulas. On Chemical Transformations. On Solutions and Liquids. On Crystals and Solids. On the Colloidal State. On Earthy Materials. On Hydrocarbons. On Oxygen Compounds. On Nitrogen Compounds. On Food Materials. On Fuel Materials. On Metallic Materials. On Plastics. On the Economic Scope of Things Chemical.

Lubricating Greases: Their Manufacture and Use.

by E. N. Klemgard, Consulting Lubrication Engineer.

1937, 6x9, 873 pages, 28 illustrations, $16.50.

"To the grease-maker, the research chemist, the lubrication engineer, and the grease user, this book must be of inestimable value. Inside its covers it presents in a concise and readily accessible manner much data to help them in solving the multiplicity of problems which are their daily lot."—*The Petroleum Times*

CONTENTS: Preface, Introduction. The Colloidal Nature of Lubricating Greases. Materials Used in Grease Manufacture. Theory of Lubricating Grease Manufacture. Grease Manufacturing Equipment and Plant. Calcium Base Greases. Sett Greases. Sodium Base Greases. Aluminum Base Greases. Lead Base Greases. Miscellaneous Metallic Soap Base Greases. Inorganic-Hydrocarbon Lubricants. Organic Lubricants and Extreme-pressure Compounds. Miscellaneous Organic Lubricants. Grease Plant Management and Research. Appendix: Analytical Methods and Tests. Indexes.

The Amazing Petroleum Industry*

by Vladimir A. Kalichevsky, Research and Development Laboratories, Socony-Vacuum Oil Co., Inc.

1943, 5x7, 234 pages, illustrated, $2.50.

"For those interested in oil, literally from the ground up, this book is a complete technical treatise."—*Newark Sunday Call*

"Dr. Kalichevsky tells the story as it is today, clearly, simply, yet scientifically."—*N. Y. Herald-Tribune*

". . . fills a gap in petroleum literature, and a large group . . . representing those who know a little, but not enough, about petroleum refining will be grateful to the author."—*Chemical and Engineering News*

CONTENTS: Preface; Introduction; The Production and Nature of Petroleum; Transportation and Storage; Gasoline and Crude Oil Distillation; Cracking; Hydrogenation and Aviation Gasoline; Chemical Treatment of Light Petroleum Products; Chemical Treatment of Lubricating Oils; Wax, Asphalt, and Greases; Waste Refinery Products; Chemicals from Petroleum; Glossary; Treatises on Petroleum; Index.

The Chemical Constituents of Petroleum

by A. N. Sachanen, Research and Development Division, Socony-Vacuum Oil Co., Inc.

1945, 6x9, 451 pages, illustrated, $8.50.

CONTENTS: Preface; Petroleum Gases and Natural Gasoline; Physical Methods of Determining Hydrocarbons in Distillates; Chemical Methods of Determining Hydrocarbons in Distillates; Hydrocarbons of Straight-run Distillates; Hydrocarbons of Synthetic Distillates; Petroleum Wax; Oxygen Compounds;

TESTED LUBRICANTS FOR

Power House • Shop

Construction • Highway

All Industrial and

Automotive Uses

SINCLAIR

SINCLAIR REFINING COMPANY

630 Fifth Avenue, New York 20, N.Y.

Sulfur and Nitrogen Compounds; Resins and Asphaltic Products; Classification of Crude Oils. Author Index. Subject Index.

Fats and Oils*

An outline of Their Chemistry and Technology.

by H. G. Kirschenbauer, Research Chemist, Colgate-Palmolive-Peet Co.

1944, 6x9, 154 pages, illustrated, second printing 1948, $3.00.

This book covers the nature, methods of processing, chemical structure and diverse uses of both animal and vegetable oils and fats. The text is amplified with tabular data, diagrams and illustrations.

This handy and informative volume will be welcomed by workers in soap, paint, food and cosmetic industries, and will serve as an excellent reference book for students of industrial chemistry.

CONTENTS: Introduction; Constituents and Components of Fats; Structure and Classification of Fats; The Nature of Fats and Fatty Acids; Analytical Methods; The Technology of Fats; Some Important Fats; Waxes; Appendix; Tables; Bibliography; Index.

*Indicates Trade Book.

Blair on West Coast For Precision Scientific

To answer a long felt need, Precision Scientific Co. of Chicago, makers of scientific research and product control apparatus, has opened a branch office in San Francisco. Mr. Walter A. Blair has been placed in charge and will be located at 302 Hobart Building, 582 Market Street, San Francisco 4.

Mr. Blair studied chemical engineering at the University of Wisconsin and worked in design and layout of process control systems before being commissioned Lieutenant in the Navy. He was stationed at Mare Island, California. After the war, he was a Product Design Engineer with the Fansteel Metallurgical Corporation of North Chicago before coming to Precision Scientific Company.

Get your Bound Volume No. 12 of "The Institute Spokesman."

Used and Reconditioned
STEEL DRUMS
READY TO FILL
Suitable for greases, asphalt, paints, oils, chemicals, etc.
ALLIED DRUM SERVICE, INC.
Phone Cypress 4436
LOUISVILLE 12, KY.

Ship Safely in Barrels made by J&L
J&L STEEL BARREL COMPANY
SUBSIDIARY OF
Jones & Laughlin Steel Corporation
PLANTS
North Kansas City, Mo. - Bayonne, N. J. - Philadelphia, Pa. - New Orleans, (Gretna) La. - Cleveland, Ohio - Port Arthur, Texas

ALUMINUM
STANDARDIZED AND SPECIAL
stearates
ZINC CALCIUM STRONTIUM MAGNESIUM
MORE THAN 20 GRADES AND TYPES AVAILABLE. SAMPLES AND DATA ON REQUEST.
82 Years of Service to Chemical Users
MALLINCKRODT CHEMICAL WORKS
MALLINCKRODT ST. St Louis 7, Mo.
72 GOLD STREET New York 8, N. Y.

G.P.&F."E-Z-FILL"
GREASE GUN LOADER CONTAINER
CLEANER, QUICKER, MORE ECONOMICAL
GEUDER, PAESCHKE & FREY CO.
300 N. 15 ST., MILWAUKEE 3, WISCONSIN

CORRECT LUBRICATION
since 1866
SOCONY-VACUUM OIL COMPANY, INC.
26 BROADWAY NEW YORK, N. Y.

Penn-Drake
PETROSULS
Petroleum Sulfonates
The high quality and dependable uniformity of Penn-Drake PETROSULS insure complete satisfaction to the user of these modern products. Write for full information and specifications.
PENNSYLVANIA REFINING COMPANY
General Offices: BUTLER, PA.
Branches: Cleveland, Ohio; Edgewater, N. J.
Representatives in Principal Cities

Bound Volumes

of

The INSTITUTE Spokesman

YOU HAVE
BEEN ASKING
FOR THEM . . .

HERE THEY ARE!

All 12 copies published from April, 1948 through March, 1949. Attractively bound, lettered in gold on the front cover and binding. A permanent and authentic reference book for your library.

A VERY LIMITED QUANTITY AVAILABLE

Per Complete Copy.....$5.00

All orders will be filled as received until the supply is exhausted

SO Fill Out the Coupon Below NOW and Assure Yourself of At Least One Copy

Your Last Opportunity

Please enter my order for_____copies of Bound Volume No. XII of The Institute Spokesman. Send invoice for_____at $5.00 apiece.

NAME_____

COMPANY_____

STREET_____

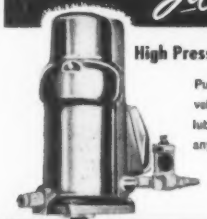
CITY_____

STATE_____

MAIL THIS COUPON TO:

NATIONAL LUBRICATING GREASE INSTITUTE
4638 Mill Creek Parkway, Kansas City 2, Mo.

BALCRANK *Jet Power*



High Pressure Pump

Pumps greatest volume of any lubricant at any temperature

BALCRANK INC., CINCINNATI 9, OHIO

U·S·S Steel Drums

Painted · Galvanized · Tinned
Decorated · Stainless

U·S·S Steel Pails

2½ to 6½-gallon capacities. Baked enamel finishes, in any color combination, or with lithographed heads or shells.

UNITED STATES STEEL PRODUCTS COMPANY

30 Rockefeller Plaza, New York 20, N. Y.
Los Angeles and Alameda, Cal. · Beaumont and Port Arthur, Texas
Chicago, Ill. · New Orleans, La. · Sharon, Pa.

LEAD NAPHTHENATE

liquid & solid

LEAD OLEATE

THE HARSHAW CHEMICAL CO.

1945 E. 97th Street, Cleveland, Ohio

BRANCHES IN PRINCIPAL CITIES

Specialized Glycerides
and
FATTY ACIDS
for
Lubricating Greases

THE
WERNER G. SMITH CO.
(Division of Archer-Daniels-Midland Company)
2191 West 110th St., Cleveland, O.

Cottonseed Fatty Acids
Tallow Fatty Acids
Stearic & Oleic Acids

A. GROSS & CO.
295 MADISON AVE.
N. Y. 17
FACTORY:
NEWARK,
N. J.

VULCAN STAMPING & MANUFACTURING CO.

Steel Shipping Containers

BELLWOOD, ILLINOIS

STEEL SHIPPING CONTAINERS
STEEL PAILS AND CANS

All Sizes—All Styles

We would appreciate your inquiries

Central Can Company, Inc.
2415 W. 19th STREET
CHICAGO, ILL.

ARO
AUTOMOTIVE, INDUSTRIAL
LUBRICATING EQUIPMENT

"We Invite Comparison"

THE ARO EQUIPMENT CORP.
BRYAN, OHIO

ZEE LINE

PROMOTIONAL LUBRICATING EQUIPMENT

Sold Exclusively
TO AND BY THE OIL INDUSTRY

NATIONAL SALES, INC.
812 NORTH MAIN • WICHITA, KANSAS

Foote
MINERAL COMPANY

A Step Ahead in Industrial Ores and Chemicals

"Lithium and Strontium Chemicals for the Petroleum Industry"

Home Office: 10 E. Chelten Ave. Philadelphia 44, Pa.
Plant: Exton, Pa.

FOR IMPROVED GREASES

. . . Specify . . .

NEO-FAT LUB BASE . . . stabilized blended fatty acid for soft greases.

NEO-FAT H F. O. . . . hydrogenated fish oil fatty acid for hard greases.

. . . and these are only two of Armour's complete line of fractionally distilled and double distilled fatty acids for grease compounding. For details, write:

ARMOUR *Chemical* DIVISION
1355 W. 31st St. Chicago 9, Ill.

EMERY

Animal, Cottonseed, Hydrogenated Fish Oil **FATTY ACIDS, STEARIC and OLEIC ACIDS for compounding Greases and special Lubricants.**

EMERY INDUSTRIES, INC.
Cincinnati 2, Ohio

Henry J. Cohn, Veteran Oil Man, Dies

Managed Sonneborn Bros. Prior to Retirement

Henry J. Cohn, veteran oil man and general manager of Sonneborn Bros., Texas, for 36 years prior to his retirement in 1945, died March 18 at the age of 73.

A leader in business and civic development in the Southwest, Mr. Cohn entered the oil business at the age of 10. As an employee of the old Pierce Oil Company of Texas, he was key witness in the nation's first anti-trust suit, brought against the Pierce Company by the State of Texas.

When Sonneborn Bros. was established in 1909 as Southwest market system distributor for L. Sonneborn Sons, Inc., New York, Mr. Cohn took over as general manager. He pioneered the sale of Pennsylvania motor oil throughout Texas in the days when Amalie Pennsylvania Motor Oil was packaged only in 5-gallon cans and wooden barrels and delivered by horse-drawn vehicles. Under his leadership, Sonneborn Bros. grew in size and scope to the point where it now distributes Sonneborn's wide range of refined petroleum products and building specialties throughout Texas, Oklahoma, New Mexico and Arizona.

Mr. Cohn was also active in civic affairs in Dallas, where he resided. He took great interest in the improvement of roads and highways and served on the committee which developed the city's central boulevard system.

Mr. Cohn is survived by his wife, two daughters and three grandchildren.

Nopco Chemical Co. Names New President

The board of directors of Nopco Chemical Co., Harrison, N. J., has announced the election of Thomas A. Printon as president. Mr. Printon succeeds Charles P. Gulick one of the company's founders and president since 1932. Mr. Gulick will continue as chairman of the board.

Mr. Printon was graduated from Boston College in 1917. He served in World War I in the Overseas Transport Service.

He joined Nopco in 1922 as a salesman and later became New England district manager. Shortly afterward he was transferred to the company's Harrison office in charge of the textile division. He was elected a director in 1936 and a vice-president in 1938.

Mr. Printon is a member of the Boston College Club of N. Y., Maplewood Country Club, and the Newark Athletic Club.

There's Still Plenty of Room for Everyone At The Annual Meeting

So Many People Want to Attend They've Given Us More Hotel Accommodations

FOR HOTEL RESERVATIONS NOTIFY THE N.L.G.I. OFFICE

4,000 SALESMEN IN EVERY CAR...

G.P.&F. E-Z-Fill Grease Gun Loader Container

The container you use can be one of your best salesmen. Every car of E-Z-Fill pails contains 4,000 specialty salesmen, ready to go to work and help sell your product.

Not only do your customers want good grease —they want it furnished in a way that makes it easy and convenient to use. Your choice of containers can add a lot to the sales appeal of your product.

When it comes to filling grease guns, the G.P.&F. E-Z-Fill Grease Gun Loader Container is a specialist. It is designed so a gun can be filled directly from the pail without removing the cover.

IT'S ECONOMICAL — because there is no wasted grease. Dirty grease is wasted grease — but in this pail it can't get dirty. The grease is never exposed. Dirt, grit and moisture can't get into it.

IT'S CLEAN — There is no messy handling involved. The grease never touches anything except the inside of the pail and the inside of the gun. The automatic shut-off disc prevents drippings before and after the gun is filled.

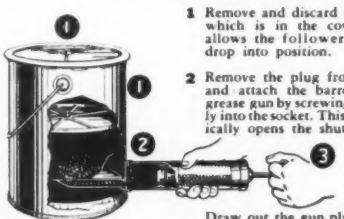
IT'S FAST — because it's simple to use. Three quick steps and your grease gun is filled and ready for use.

IT'S A SALES MAKER — because farmers, industrial plants, garages — anyone who uses grease, appreciates and wants these conveniences.

It adds an extra degree of quality to your product.

And don't overlook the possibilities of G. P. & F. lithography. A permanent advertisement can be economically added to your package.

3 E-Z STEPS FOR FILLING GREASE GUN:



U.S. Patents No. 2,214,779, No. 2,266,827, No. 2,313,845 and No. 2,328,363. Pat'd in Canada 1942.

1 Remove and discard the screw which is in the cover. This allows the follower plate to drop into position.

2 Remove the plug from socket and attach the barrel of the grease gun by screwing it tightly into the socket. This automatically opens the shut-off disc.

3 Draw out the gun plunger until the gun is filled with grease. Detach the grease gun. This automatically closes the shut-off disc.

FURNISHED IN 25 AND 35 POUND SIZES

Write today for more details on the E-Z way to boost your sales.

G.P.&F. STEEL CONTAINERS MILWAUKEE

GEUDER, PAESCHKE & FREY CO.

300 NORTH 15TH STREET • MILWAUKEE 3, WISCONSIN

ABOUT THE COVER

G. P. & F. E-Z-Fill Grease Gun Loader Container

The E-Z-Fill pail is a popular member of Geuder, Paeschke & Frey Co.'s family of steel shipping containers.

It is designed and constructed so that a grease gun can be filled directly from the container without waste of time and grease, and without the usual messiness.

After the cover is sealed in place by the grease manufacturer, it does not have to be removed. Grease guns are filled directly from the container through a side opening socket. When the gun is screwed into this socket, a shut-off disc opens and allows the grease to be drawn directly into the gun. The shut-off disc closes as the gun is removed.

When the container is manufactured, a follower plate is attached to the inside of the cover. When the pail is used, this follower plate moves down, wipes the sides of the pail, and controls the uniform removal of the grease.

Armour Publishes New Booklet on Fatty Acids

Products have always been improved upon by progressive research and wise experimentation. In an effort to aid in the research and testing of fatty acids Armour and Company has produced an 8-page booklet, THE HANDLING, SAMPLING AND TESTING OF FATTY ACIDS which is being released as a supplement to THE CHEMISTRY OF FATTY ACIDS.

The book covers the methods in which the fatty acids are shipped; the pumping of fatty acids; the various process equipment; the standard sampling methods and equipment used; the testing of fatty acids, including the tests commonly used and their meanings (acid value, titer, iodine value, M.I.U. color).

The booklet was prepared to answer the many questions frequently asked by those who buy, test or use fatty acids. Through the use of THE HANDLING, SAMPLING AND TESTING OF FATTY ACIDS more people can explore the many ways that fatty acids and their derivatives — amines, amides, nitriles, can improve their products.

Copies of this booklet may be obtained at no charge by writing: Roy N. Williams, Armour and Co., 1355 West 31st St., Chicago, Ill.

The INSTITUTE SPOKESMAN

Published monthly by

THE NATIONAL LUBRICATING GREASE INSTITUTE

HARRY F. BENNETTS.....*Editor*

4638 Millcreek Parkway

Kansas City 2, Mo.

OFFICERS

President: B. G. SYMON, Shell Oil Company, Inc., 50 West 50th, New York 20, N.Y.

Vice-President: A. J. DANIEL, Battenfeld Grease and Oil Corporation, 32nd and Roanoke Road, Kansas City 8, Missouri.

Treasurer: E. V. MONCRIEFF, Swan-Finch Oil Company, Rm. 1605, R. C. A. Building, New York 20, N.Y.

Executive Secretary: HARRY F. BENNETTS, 4638 Millcreek Parkway, Kansas City 2, Missouri.

DIRECTORS

W. W. ALBRIGHT, Standard Oil Company of Indiana, 910 South Michigan, Chicago, Ill.
M. R. BOWER, Standard Oil Co. of Ohio, Midland Building, Cleveland 15, Ohio.
W. G. CLARK, Pure Oil Company, 35 East Wacker Dr., Chicago 1, Illinois.
HOWARD COOPER, Sinclair Refining Company, 630 Fifth Ave., New York, N.Y.
J. R. CORBETT, Cato Oil and Grease Company, 1808 East Ninth St., P. O. 172, Oklahoma City, Oklahoma.
A. J. DANIEL, Battenfeld Grease and Oil Corp., 3148 Roanoke Rd., Kansas City, Mo.
C. W. GEORGI, Enterprise Oil Company, 164 Chandler, Buffalo 7, N.Y.
H. P. HOBART, Gulf Oil Company, Gulf Building, Pittsburgh, Pa.
C. B. KARNS, Standard Oil Co. of Pennsylvania, 34th and Smallman, Pittsburgh, Pa.
F. C. KERNS, The Texas Company, 135 East 42nd St., New York 20, N.Y.
PAUL V. KEYSER, Jr., Socony-Vacuum Oil Co., Inc., 26 Broadway, New York 4, New York.
H. A. MAYOR, Southwest Grease and Oil Co., 220 West Waterman, Wichita, Kansas.
G. E. MERKEL, Fiske Bros. Refining Company, 129 Lockwood Ave., Newark 5, N. J.
E. V. MONCRIEFF, Swan-Finch Oil Company, Rm. 1605, R.C.A. Building, New York 20, New York.
G. L. NEELY, Standard Oil Co. of California, San Francisco 20, California.
W. H. OLDACRE, D. A. Stuart Oil Co., Ltd., 2727 South Troy, Chicago 23, Illinois.
W. H. SAUNDERS, Jr., International Lubricant Corp., New Orleans, Louisiana.
B. G. SYMON, Shell Oil Company, Inc., 50 West 50th, New York 20, N.Y.

The NATIONAL LUBRICATING GREASE INSTITUTE assumes no responsibility for the statements and opinions advanced by contributors to its publications. Views expressed in the editorials are those of the editors and do not necessarily represent the official position of the NATIONAL LUBRICATING GREASE INSTITUTE. Published monthly by the NATIONAL LUBRICATING GREASE INSTITUTE from 4638 Mill Creek Parkway, Kansas City 2, Missouri. Copyright 1948, The National Lubricating Grease Institute.

H. L. HEMMINGWAY

Hugh L. Hemmingway Is Elected to N.L.G.I. Board

Hugh L. Hemmingway of the Pure Oil Company was recently elected to the N.L.G.I. Board of Directors. He will fill the position opened by the resignation of W. G. Clark.

Mr. Hemmingway has been associated with the petroleum industry and a member of the S.A.E. since 1933. A native of Janesville, Wisconsin, he attended the University of Wisconsin, graduating with Bachelor's degree in Electrical Engineering in 1931 and Master's degree in Mechanical Engineering in 1932.

From 1933 to 1935 he was employed by the Ashland Oil and Refining Company of Ashland, Kentucky. In 1935 he joined the Kendall Refining Company of Bradford, Pennsylvania, becoming Chief Product Engineer for Lubricants in 1942. Since December, 1944, Mr. Hemmingway has been associated with The Pure Oil Company and is at present Manager of the Technical Service Department.

During the war he was a member of various technical committees on oils, gear lubricants and greases of the S.A.E., Coordinating Research Council, National Lubricating Grease Institute, Pennsylvania Grade Crude Oil Association, National Petroleum Association, and American Petroleum Institute.

LUBRICATE WITH PROFIT

The Machine Age on the Farm

In this—*the machine age on the farm*—farm equipment affords a large, lucrative field for lubricants made with Metasap Stearate Bases . . . for their proved ability to keep axles, chassis, ball and roller bearings and other moving parts operating economically and at top effectiveness. Another important advantage is their ease of handling in hand grease pumps!

Your lubricants made from Metasap Stearates will be clear, transparent, moisture-free and temperature-resistant. Will not bleed, cake, freeze, evaporate or dissolve. Will have less base, more mineral oil—the *true* lubricating ingredient.

Metasap Stearate Bases include . . . *Aluminum Stearate GM for heavy greases; Metasap 537 for firm greases, with no cracking or bleeding; Metavis 540 for low viscosity greases; Metavis 543 for stringiness and body; Metasap 590 for extreme bodying action.* Write today for technical details and for your complimentary copy of "Metallic Soaps for Research and Industry".

METASAP CHEMICAL COMPANY, Harrison, N. J.

CHICAGO • BOSTON • RICHMOND, CALIF. • CEDARTOWN, GA.

Also stocks at Cleveland, Ohio; Louisville, Ky.; San Francisco and Los Angeles, Calif.; Portland, Spokane and Seattle, Wash.

PHOTO COURTESY CATERPILLAR TRACTOR CO.

METASAP CHEMICAL COMPANY

REG. U.S. PAT. OFF.

Stearates

of Calcium • Aluminum • Lead • Magnesium • Zinc

Associate & Technical Members

of the

NATIONAL LUBRICATING GREASE INSTITUTE

LISTED BELOW ARE THE SUPPLIERS OF YOUR INDUSTRY WHO ARE SUPPORTING YOUR ORGANIZATION THROUGH MEMBERSHIP IN THE N. L. G. I.

SUPPLIERS OF MATERIALS FOR MANUFACTURING LUBRICATING GREASES

Armour & Co., Chemical Division
1355 West 31st St.
Chicago 9, Illinois
Member—Dale V. Stingley

American Cyanamid Company
30 Rockefeller Plaza
New York, New York
Member—A. Scharwachter

Emery Industries, Inc.
Carew Tower
Cincinnati 2, Ohio
Member—R. F. Brown

Foote Mineral Company
10 Chelton Street
Philadelphia 44, Pennsylvania
Member—H. C. Meyer, Jr.

A. Gross & Company
295 Madison Avenue
New York City 17, New York
Member—Eugene Adams

W. C. Hardesty Co., Inc.
41 East 42nd St
New York City, New York
Member—W. G. McLeod

Harshaw Chemical Company
1945 East 97th Street
Cleveland 6, Ohio
Member—G. G. Unkefer

Lubrizol Corporation
Euclid Station
Cleveland 17, Ohio
Member—J. H. Baird

Mallinckrodt Chemical Works
New York 8, New York
St. Louis 7, Missouri
Member—C. E. Cosby

Metasap Chemical Corporation
Harrison, New Jersey
Member—O. E. Lohrke

Monsanto Chemical Company
1700 Second Street
St. Louis 4, Missouri
Member—J. W. Newcombe

National Lead Company
105 York Street
Brooklyn 1, New York
Member—Alexander Stewart

National Rosin Oil & Size Co.
1270 Avenue of the Americas
New York City, New York
Member—Richard Bender

M. W. Parsons, Imports & Plymouth Organic Labs., Inc.
59 Beekman Street
New York City 7, New York
Member—H. Bye

Swift & Company, Industrial Oil Division
Union Stock Yards
Chicago 9, Illinois

Warwick Chemical Company
Division of the Sun Chemical Corporation
10-10 44th Avenue
Long Island City 1, New York
Member—Dr. J. J. Whitfield

The Werner G. Smith Co.
(Division of Archer-Daniels-Midland Co.)
2191 West 110th Street
Cleveland 2, Ohio
Member—F. C. Haas

Witco Chemical Co.
295 Madison Ave.
New York City, New York
Member—Allen B. Craig, Jr.

CONTAINER MANUFACTURERS

Central Can Company, Inc.
2415 West 19th St.
Chicago, Illinois
Member—Henry Frazin

Continental Can Co.
1103 Waldheim Building
Kansas City 6, Missouri
Member—N. M. Potts

Geuder, Paeschke & Frey Co.
324 North Fifteenth Street
Milwaukee 3, Wisconsin
Member—Willard J. Flint

Inland Steel Container Company
6532 South Menard Avenue
Chicago 38, Illinois
Member—J. T. Gossett

J & L Steel Barrel Company
70 East 45th Street
New York City, New York
Member—Jerry Lyons

United States Steel Products Co.
30 Rockefeller Plaza
New York City 20, New York
Member—Wm. I. Hanrahan

Vulcan Stamping & Manufacturing Co.
300 Madison Street
Bellwood, Illinois
Member—Dale M. Harpold

MANUFACTURERS OF EQUIPMENT FOR APPLICATION OF LUBRICATING GREASES

The Aro Equipment Corporation
Bryon, Ohio
Member—R. W. Morrison

Balcrank, Inc.
Disney near Marburg
Cincinnati 9, Ohio
Member—R. P. Field

The Fil-Rite Company
342 Lumber Exchange Building
Minneapolis, Minnesota
Member—Howard G. Hornibrook

Gray Company, Inc.
60—11th Avenue Northeast
Minneapolis 13, Minnesota
Member—L. L. Gray

Lincoln Engineering Company
5730 Natural Bridge Avenue
St. Louis, Missouri
Member—Foster Holmes

National Sales, Inc.
812 North Main St.
Wichita, Kansas

Stewart-Warner Corp.
1826-1852 Diversey Parkway
Chicago, Illinois
Member—Walter Duncan

U. S. Air Compressor Company
5300 Harvard
Cleveland, Ohio
Member—F. J. Coughlin

LABORATORY EQUIPMENT & SUPPLIES

Precision Scientific Company
3737 Cortland Street
Chicago 47, Illinois
Member—Alexander I. Newman

SUPPLIERS OF EQUIPMENT FOR MANUFACTURING LUBRICATING GREASES

Buflovak Equipment Division of Blaw-Knox Company
1543 Fillmore Avenue
Buffalo 15, New York
Member—A. W. Johnson

Cornell Machine Company
101 Park Avenue
New York City 17, New York
Member—Mead Cornell

The Girdler Corp.
Louisville 1, Kentucky
Member—John E. Slaughter, Jr.

Stratford Engineering Corporation
1414 Dierks Building
Kansas City, Missouri
Member—J. A. Altshuler

MARKETING ORGANIZATIONS

Mid-Continent Petroleum Corporation
Tulsa, Oklahoma
Member—T. E. Fitzgerald

REFINERS

Calumet Refining Company
4323 Southwestern Blvd.
Chicago, Illinois
Member— H. E. Semerau

TECHNICAL & RESEARCH ORGANIZATIONS

Cargill, Incorporated
200 Grain Exchange
Minneapolis 15, Minnesota
Member—Dr. Sabine Hirsch

Mellon Institute of Industrial Research
University of Pittsburgh
Pittsburgh 13, Pennsylvania
Member—Malcolm Finlayson

Midwest Research Institute
4049 Pennsylvania
Kansas City 2, Missouri

PRESSURE SOAP CONTACTORS AND OIL CIRCULATION HEATING SYSTEMS

Make

SODA FIBER GREASE IN 2½ HOURS

Cut Costs---Increase Plant Production
Produce A More Uniform Product

Stratco Pressure Soap Contactors and Oil Circulation Heating Systems make possible the manufacture of calcium cup grease, from raw material to packaged product, at the rate of six batches in eight hours . . . soda fiber greases in 2½ hours.

Simplified laboratory control . . reduced manpower requirements . . increased production of a more uniform product result. The Stratco process has been fully tested and proved in commercial operation.

STRATFORD ENGINEERING

CORPORATION

PETROLEUM REFINING ENGINEERS

DIERKS BLDG. KANSAS CITY, MO.